

What is claimed is:

1. A method for efficiently utilizing spectrum resources comprising the steps of:
determining at least one spectrum opportunity (450, 510, 520, 530, 540), wherein said opportunity is identified by a frequency range and a time duration;
determining a set of altered transmission characteristics (515, 517, 524, 542) to allow for transmission of a desired signal in said identified frequency range, wherein said altered transmission characteristics avoid interference with signals expected in said frequency range; and
transmitting said desired signal using said altered transmission characteristics (515, 517, 524, 542) when said transmission occurs during said time duration.
2. The method as recited in claim 1, wherein the step of determining at least one opportunity comprises the steps of:
receiving signals in known frequency ranges (310, 320, 330, 450, 460, 510); and
determining the characteristics of said received signals.
3. The method as recited in claim 2, further comprising the step of:
determining a time period of reception of said received signals.
4. The method as recited in claim 2, wherein said received signal characteristics are selected from the group consisting of: received power, modulation, modulation rate and bandwidth.
5. The method as recited in claim 1, wherein the step of determining at least one opportunity comprises the steps of:
determining a location (110) of a receiving device;
obtaining location and transmission characteristics for known transmitters from at least one database; and

determining an estimated received signal characteristics based on locations of said transmitters and a location of said receiving device.

6. The method as recited in claim 5, wherein said receiving device location is selected from the group consisting of: GPS location, and manual input.

7. The method as recited in claim 1, wherein an occurrence of said step for determining at least one spectrum opportunity is performed at a rate selected from the group consisting of: periodic, time lapse from a prior occurrence, on a known event.

8. A device (1000) for effectively utilizing frequency spectrum resources, comprising:

a memory (1004); and

a processor (1003), in communication with said memory, executing code for:

receiving information items regarding at least one spectrum opportunity (510), wherein said opportunity is identified by a frequency range and a time duration;

determining a set of altered transmission characteristics (515,517) to allow for transmission of a desired signal in said identified frequency range, wherein said altered transmission characteristics (515,517) avoid interference with signals expected in said frequency range; and

enabling transmission of said desired signal in said opportunity frequency range using said altered transmission characteristics when transmission of said desired signal occurs during said opportunity time duration.

9. The device as recited in claim 8, further comprising:

a receiving unit (1001) for receiving signals and providing received signal characteristics to said processor.

10. The device as recited in claim 9, wherein said processor further executing code for;
determining said at least one spectrum opportunity information items based on said received signal characteristics.
11. The device as recited in claim 8, wherein said processor further executing code for;
determining said at least one spectrum opportunity information items based on location and transmitting characteristics of known transmitting signals stored in a database; and
a location (110) of said device.
12. The device as recited in claim 8, further comprising:
an input/output unit (1002) in communication with said processor (1003) and said memory (1004).
13. The device as recited in claim 8, wherein said code is stored in said memory (1004).
14. The device as recited in claim 8, further comprising:
a transmitting unit for transmitting said desired signal.
15. A wireless communication system comprising:
a receiving unit (850) for receiving information items regarding at least one receivable signal;
a processing unit (860) for determining characteristics of said at least one received signal
a managing unit (864) for altering transmission characteristics of a desired signal based on said determined received signal characteristics, wherein said altered transmission characteristics avoid interference with said received signals; and
a transmission unit (830) receiving said altered transmission characteristics to transmit said desired signal.

16. The system as recited in claim 15, wherein said receiving unit is a receiver for receiving signals transmitted wirelessly and said information items are associated with said received signals.

17. The system as recited in claim 15, wherein said receiving unit is a processor for receiving information associated with location and transmission characteristics of known transmitting signals and said information items are determined from said location and transmission characteristics of said known transmitting signals.

18. The system as recited in claim 15, wherein said opportunities are determined with regard to frequency ranges and time periods.

19. The system as recited in claim 15, wherein said altered transmission characteristics are selected from the group consisting of: power, modulation, modulation type, and coding rate.

20. The system as recited in claim 15, wherein said desired signal transmission power (515, 517) in a frequency range of said received signals is substantially higher when said received signals are not present.

21. The system as recited in claim 15, wherein said desired signal transmission characteristics are altered in a frequency range/time period to avoid interference with received signals in said frequency range.